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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Martin Schrader

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EXAMINER

PERRY, ANTHONY T

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/524,985	Applicant(s) SCHRADER, MARTIN	
	Examiner ANTHONY T. PERRY	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26, 28-31, 33-36, and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sako et al. (US 2001/0004279) in view of Japanese Patent Document (JP 09-015575).

Regarding claim 26, Sako et al. disclose a display device comprising: a substrate layer (103) comprising substantially transparent material; a pinhole mask (108,118) comprising an array of pinholes (107,117), wherein each pinhole (107,117) of the array of pinholes is associated with a pixel of the display device; and an array of electrically controllable lenses (104a+ 104b+ 105) positioned between the substrate layer (103) and the pinhole mask (108,118) to control the divergence of light received through the substrate and the lenses towards the pinhole mask, wherein the light is guided towards and into a pinhole by a lens of the array of electrically controllable lenses to illuminate the associated pixel and is transmitted unfocused (light is allowed to continue on a slanted path and is substantially absorbed by the pinhole mask) by the lens to darken the associated pixel (for example, see Figs. 1 and 6).

Sako et al. do not specifically teach the light being focused into the pinhole, only show the light being deflected towards and into the pinholes. However, JP 09-015575, submitted by the Applicant, disclose a liquid crystal display device, similar to that shown by Sako et al.,

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except that uses a lens (6) that focuses the light (14) into the pinhole (10) of the mask (9), in order to provide a high contrast ratio and a high utilization efficiency of the optical output (for example, see the translated abstract and Fig. 5, provided by the Applicant). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to alter the device taught by Sako et al. in order to include the lens structure of JP 09-015575 in order to provide a brighter, more efficient, display device having a higher contrast ratio.

Regarding claims 28-30, JP 09-015575 teaches the electrically controllable lenses (6) are liquid crystal based switchable lenses, wherein the lenses are variable focus lenses with each having two or more separate electrically selectable focus values, and are controlled through affecting their on-off duty cycle, which controls the brightness of the associated pixels (for example, see the translated abstract and Fig. 5, provided by the Applicant).

Same reasoning for combination provided in the rejection of claim 26, above, applies.

Regarding claim 31, Sako et al. disclose the display device of claim 26, wherein the pinhole comprises a reflective mirror (117) configured to reflect light back in the direction of lens (104a+104b+105) (for example, see Fig. 1).

Regarding claims 33-34, Sako et al. teach a method of operating a display device, the method comprising: receiving light (109,110) in a display device at an array of electrically controllable lenses (104a+ 104b+ 105); determining whether to illuminate a pixel of the display device; and if it is determined to illuminate the pixel, controlling a lens of the array of electrically controllable lenses (104a+ 104b+ 105) to deflect (light (109) is made to travel straight to the pinhole) the received light into a pinhole (107,117) of an array of pinholes, and if it is determined not to illuminate the pixel, allowing the received light to pass through the lens

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unfocused (light (110) is allowed to continue on a slanted path and is substantially absorbed by the pinhole mask) wherein the unfocused light is substantially blocked by a pinhole mask (108,118) including the array of pinholes (107,117) (for example, see Figs. 1 and 6).

Sako et al. do not specifically teach the light being focused into the pinhole, only show the light being deflected towards and into the pinholes. However, JP 09-015575, submitted by the Applicant, disclose a liquid crystal display device, similar to that shown by Sako et al., except that uses a lens (6) that focuses the light (14) into the pinhole (10) of the mask (9), in order to provide a high contrast ratio and a high utilization efficiency of the optical output (for example, see the translated abstract and Fig. 5, provided by the Applicant). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to alter the device taught by Sako et al. in order to include the lens structure of JP 09-015575 in order to provide a brighter, more efficient, display device having a higher contrast ratio.

Regarding claims 35-36 and 37, JP 09-015575 teaches the electrically controllable lenses (6) are liquid crystal based switchable lenses, wherein the lenses are variable focus lenses with each having two or more separate electrically selectable focus values, and are controlled through affecting their on-off duty cycle, which controls the brightness of the associated pixels (for example, see the translated abstract and Fig. 5, provided by the Applicant).

Same reasoning for combination provided in the rejection of claims 33-34, above, applies.

Regarding claim 39, Sako et al. teach the method of claim 33, wherein the pinhole comprises a reflective mirror (117) that reflects received light back in the direction of lens (104a+104b+105) (for example, see Fig. 1).

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Claims 27 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sako et al. (US 2001/0004279) in view of Japanese Patent Document (JP 09-015575), and further in view of Engle (US 5,623,361).

Regarding claim 27, Sako et al. do not specifically teach the electrically controllable lenses are based on the use of electrically deformable viscoelastic gel. However, using a deformable viscoelastic gel, such as a polymer, in a similar way as the liquid crystal based electrically controllable lenses is well known in the art, as evidenced by Engle (for example, see abstract and col. 3, lines 5-34). It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Accordingly, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have reasonably considered using electrically deformable viscoelastic gel or liquid crystal based switchable lenses, since the selection of known materials for a known purpose is within the skill of the art.

Regarding claim 37, Sako et al. do not specifically teach the electrically controllable lenses are based on the use of electrically deformable viscoelastic gel. However, using a deformable viscoelastic gel, such as a polymer, in a similar way as the liquid crystal based electrically controllable lenses is well known in the art, as evidenced by Engle (for example, see abstract and col. 3, lines 5-34). It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Accordingly, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have reasonably considered using electrically

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deformable viscoelastic gel or liquid crystal based switchable lenses, since the selection of known materials for a known purpose is within the skill of the art.

Claims 32 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sako et al. (US 2001/0004279) in view of Japanese Patent Document (JP 09-015575), and further in view of Do et al. (US 5,608,554).

Regarding claim 32, Sako et al. disclose the display device according to claim 25, but do not specifically teach the use of phosphors, and instead teach the light directed through the pinhole and passing through color filters, wherein the pinholes (117) in the pinhole mask (118) are arranged to determine an optical path towards color filters to produce a color display (for example, see paragraph 0047). However, Do et al. teach replacing color filters with different types of phosphor materials (8) in order to provide a fluorescent display device (for example, see Fig. 2). Do et al. teach that using phosphor materials instead of color filters provides a display with a greater luminance (for example, see the abstract). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the color filters of the Sako reference with phosphor materials in order to provide a brighter display with a wider viewing angle.

Regarding claim 40, Sako et al. the method of claim 33, but do not specifically teach the use of phosphors, and instead teach the light focused into the pinhole passing through color filters, wherein the pinholes (117) in the pinhole mask (118) are arranged to determine an optical path towards color filters to produce a color display (for example, see paragraph 0047).

However, Do et al. teach replacing color filters with different types of phosphor materials (8) in

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order to provide a fluorescent display device (for example, see Fig. 2). Do et al. teach that using phosphor materials instead of color filters provides a display with a greater luminance (for example, see the abstract). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the color filters of the Sako reference with phosphor materials in order to provide a brighter display with a wider viewing angle.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment, filed 12/23/08, necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is **(571) 272-2459**. The examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. **The fax phone number for this Group is (571) 273-8300.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Anthony Perry/

Anthony Perry
Patent Examiner
Art Unit 2879

/Peter J Macchiarolo/
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